National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation



Page 1 of 6

CALIBRATION LABORATORIES

NVLAP LAB CODE 200491-0

RUSKA CALIBRATION LABORATORY

10311 Westpark Drive P.O. Box 630009 Houston, TX 77042-5312 Mr. Kenneth A. Kolb

Phone: 713-975-0547 Fax: 713-975-6338

E-Mail: kolbk@ruska.com URL: http://www.ruska.com

MECHANICAL

NVLAP Code: 20/M08

Mass - Calibration in support of deadweight pressure measurements

Range	Best Uncertainty $(\pm)^{note1}$	Remarks
17.13 kg	85.66 mg	
16.80 kg	84.00 mg	
11.81 kg	59.05 mg	
5 kg	25.0 mg	
3 kg	15.0 mg	
2.36 kg	11.8 mg	
2 kg	10.0 mg	
1 kg	5.0 mg	
500 g	2.5 mg	
300 g	1.5 mg	

December 31, 2003

Pavid I. alderman

Effective through

National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation



Page 2 of 6

CALIBRATION LABORATORIES

NVLAP LAB CODE 200491-0

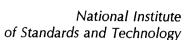
RUSKA CALIBRATION LABORATORY

200 g	1.0 mg
100 g	0.5 mg
50 g	0.5 mg
30 g	0.5 mg
20 g	0.5 mg
10 g	0.5 mg
5 g	0.5 mg
3 g	0.5 mg
2 g	0.5 mg
1 g	0.5 mg
500 mg	0.5 mg
300 mg	0.5 mg
200 mg	0.5 mg
100 mg	0.5 mg
50 mg	0.5 mg
30 mg	0.5 mg
20 mg	0.5 mg
10 mg	0.5 mg

December 31, 2003

Effective through

Pavid F. alderman





National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation



Page 3 of 6

CALIBRATION LABORATORIES

NVLAP LAB CODE 200491-0

RUSKA CALIBRATION LABORATORY

5 mg	0.5 mg
3 mg	0.5 mg
2 mg	0.5 mg
1 mg	0.5 mg

THERMODYNAMICS

NVLAP Code: 20/T05

Pressure

Pneumatic Pressure (Gauge Mode) Direct Pressure Comparison - Ultimate Capability

Range	Best Uncertainty (\pm) of reading ^{note 1}	Remarks
1.38 kPa to 345 kPa	7×10^{-6} but not less than 0.07 Pa	For Absolute Mode
11.72 kPa to 1400 kPa	7×10^{-6} but not less than 0.28 Pa	uncertainties increase by 0.133 Pa added in quadrature
14 kPa to 7 MPa	7.5×10^{-6} but not less than 2.8 Pa	•
700 kPA to 21 MPa	$8.5 \times 10^{-6} + 1.7 \times 10^{-7} \text{ per MPa}$	

Pneumatic Pressure (Differential Mode) - Ultimate Capability

-16 kPa to 16 kPa $1.10 \times 10^{-5} + 0.034 \text{ Pa}$ added in quadrature

December 31, 2003

Pavid F. alderman

Effective through

National Institute of Standards and Technology



National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation



Page 4 of 6

CALIBRATION LABORATORIES

NVLAP LAB CODE 200491-0

RUSKA CALIBRATION LABORATORY

Pneumatic Pressure (Gauge Mode) Direct Pressure Comparison - General Capability

20 Pa to 16 kPa

 1.5×10^{-4} but not less than 0.1 Pa

For Absolute Mode uncertainties

750 Pa to 211 kPa

1.5 x 10⁻⁴

increase by 0.133 Pa added in quadrature

1.38 kPa to 345 kPa

 1.0×10^{-5} but not less than 0.07 Pa

11.72 kPa to 1400 kPA

 1.0×10^{-5} but not less than 0.28 Pa

14 kPA to 7 MPa

1.1 x 10⁻⁵ but not less than 2.8 Pa

700 kPa to 21 MPa

 $1.1 \times 10^{-5} + 1.9 \times 10^{-7} \text{ per MPa}$

1170 kPa to 104 MPa

 3.5×10^{-5}

Pneumatic Pressure (Absolute Mode) - General Capabilities

0 Pa to 133 Pa

10% but not less than 1.33 Pa

Pneumatic Pressure (Differential Mode) - General Capabilities

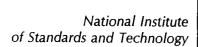
-16 kPa to +16 kPa

 1.5×10^{-4} but not less than 0.1 Pa

December 31, 2003

Pavid I. alderman

Effective through





National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation



Page 5 of 6

CALIBRATION LABORATORIES

NVLAP LAB CODE 200491-0

RUSKA CALIBRATION LABORATORY

Hydraulic Pressure (Gauge Mode) - General Capabilities

50 kPa to 5 MPa

2.5 x 10⁻⁵ but not less than 10 Pa

69 kPa to 6.9 MPa

 2.5×10^{-5} but not less than 13.8 Pa

500 kPa to 138 MPa

3.5 x 10⁻⁵

14 MPa to 276 MPa

7.5 x 10⁻⁵

6.2 MPa to 500 MPa

 1.0×10^{-4}

Hydraulic Pressure Derived Effective Area - General Capability

50 kPa to 6.9 MPa

 2.31×10^{-5}

500 kPa to 133 MPa

3.34 x 10⁻⁵

14 MPa to 276 MPa

7.29 x 10⁻⁵

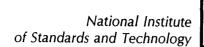
6.2 MPa to 500 MPa

9.80 x 10⁻⁵

December 31, 2003

David F. aldern

Effective through





National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999 ISO 9002:1994

Scope of Accreditation



Page 6 of 6

CALIBRATION LABORATORIES

NVLAP LAB CODE 200491-0

RUSKA CALIBRATION LABORATORY

Pneumatic Pressure Derived Effective Area - General Capability

1.38 kPa to 345 kPa

8.8 x 10⁻⁶

11.72 kPa to 1400 kPa

8.3 x 10⁻⁶

14 kPa to 7 MPa

 $1.0 \times 10^{-5} + 2.4 \times 10^{-7} \text{ per MPa}$

added in quandrature

700 kPa to 21 MPa

 $1.0 \times 10^{-5} + 4.8 \times 10^{-7} \text{ per MPa}$

added in quandrature

1170 kPa to 104 MPa

3.37 x 10⁻⁵

NVLAP Code: 20/T07 Resistance Thermometry

Range

Best Uncertainty $(\pm)^{note\ 1}$

Remarks

0-100°C

0.03°C

1. Represents an expanded uncertainty using a coverage factor, k=2.

December 31, 2003

Effective through

Pavid F. alderman